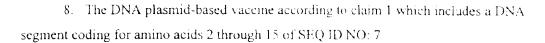
CLAIMS:

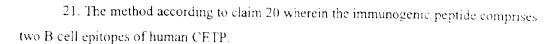
- 1. A DNA plasmid-based vaccine comprising a nucleotide sequence coding for an immunogenic polypeptide, which nucleotide sequence includes at least one segment coding for a B cell epitope of CETP linked in-frame with at least one segment coding for a broad range helper T cell epitope, which nucleotide sequence is operably linked to a promoter sequence suitable for directing the transcription of the nucleotide sequence in a mammalian cell.
- 2. The DNA plasmid-based vaccine according to claim 1 wherein said B cell epitope comprises a portion of human CETP consisting of 5-8 consecutive amino acids of SEQ II) NO:4.
- 3. The DNA plasmid-based vaccine according to claim 1 wherein said B cell epitope comprises a carboxyl terminal region of CETP, involved in neutral lipid binding or neutral lipid transfer activity.
- 4 The DNA plasmid-based vaccine according to claim 1 wherein the heiper T cell epitope comprises a helper T cell epitope derived from an antigenic peptide selected from the group consisting of tetanus toxoid, diphtheria toxin, pertussis vaccine, Bacile Calmette-Guerin (BCG), polio vaccine, measles vaccine, mumps vaccine, rubella vaccine, purified protein derivative of tuberculin, keyhole limpet hemocyanin, and combinations thereof.
- 5. The DNA plasmid-based vaccine according to claim 1 wherein the immunogenic polypeptide includes two B cell epitopes of CETP.
- 6. The DNA plasmid-based vaccine according to claim 5 which includes a DNA segment coding for amino acids 463 through 475 of SEQ ID NO. 4 and a DNA segment coding for amino acids 349 through 367 of SEQ ID NO: 4
- 7. The DNA plasmid-based vaccine according to claim 5 which includes a DNA segment coding for amino acids 461 through 476 of SEQ ID NO: 4 and a DNA segment coding for amino acids 349 through 367 of SEQ ID NO: 4



- 9. The DNA plasmid-based vaccine according to claim 1 comprising the amino acid sequence of SEQ ID NO:7.
- 10. A DNA plasmid-based vaccine according to claim 1, wherein the promoter is the cytomegalovirus immediate early promoter/enhancer.
- 11. A DNA plasmid-based vaccine comprising a nucleotide sequence comprising:
 (a) the immediate early promoter/enhancer region of cytomegalovirus (CMV), operably linked to (b) a structural DNA segment encoding an immunogenic polypeptide and comprising:
 - (i) a DNA segment encoding amino acids 2 through 15 of SEQ ID NO: 7,
 - (ii) a DNA segment encoding amino acids 463 through 475 of SEQ ID NO: 4, and
- (iii) a DNA segment encoding amino acids 349 through 367 of SEQ ID NO: 4, which DNA segments (i), (ii) and (iii) are linked in-frame.
- 12. A DNA plasmid-based vaccine comprising a nucleotide sequence comprising:
 (a) the immediate early promoter/enhancer region of cytomegalovirus (CMV), operably linked to (b) a structural DNA segment encoding an immunogenic polypeptide and comprising:
 - (i) a DNA segment encoding amino acids 2 through 15 of SEQ ID NO: 7,
 - (ii) a DNA segment encoding amino acids 461 through 476 of SEQ ID NO: 4, and
- (iii) a DNA segment encoding amino acids 349 through 367 of SEQ ID NO: 4. which DNA segments (i), (ii) and (iii) are linked in-frame.
- 13. A DNA plasmid-based vaccine comprising a DNA segment wherein the DNA segment comprises a nucleotide sequence coding for a broad range T cell epitope, the nucleotide sequence of nucleotides 54 through 111 of SEQ ID NO:5, and the nucleotide sequence of 112 through 159 of SEQ ID NO:5
 - 14. The DNA plasmid-based vaccine according to claim 13 wherein the DNA

segment comprises the nucleotide sequence of SEQ ID NO:5.

- 15. A DNA plasmid-based vaccine comprising a DNA segment wherein the DNA segment comprises a nucleotide sequence encoding a broad range T cell epitope, the nucleotide sequence of nucleotides 1045 through 1101 of SEQ ID NO:3, and nucleotides 1387 through 1425 of SEQ ID NO:3.
- 16. A DNA plasmid-based vaccine comprising a DNA segment wherein the DNA segment comprises a nucleotide sequence coding for a broad range T cell epitope, the nucleotide sequence of nucleotides 1045 through 1101 of SEQ ID NO.3, and nucleotides 1381 through 1428 of SEQ ID NO.3.
- 17. A method of elevating the ratio of circulating HDL to circulating LDL, VLDL, or total cholesterol in a human or other animal comprising administering to the human or animal a DNA vaccine comprising a nucleotide sequence coding for an immunogenic polypeptide, which nucleotide sequence includes at least one segment coding for a B cell epitope of CFTP linked in-frame with at least one segment coding for a broad range helper T cell epitope, which nucleotide sequence is operably linked to a promoter sequence suitable for directing the transcription of the nucleotide sequence in a mammalian cell.
- 18. The method according to claim 17 wherein said B cell epitope comprises a carboxyl terminal region of CETP involved in neutral lipid binding or neutral lipid transfer activity.
- 19. The method according to claim 17 wherein the broad range helper T cell epitope is selected from the group consisting of T cell epitopes of tetanus toxoid, diphtheria toxin, pertussis vaccine, Bacile Calmette-Guerin (BCG), polio vaccine, measles vaccine, mumps vaccine, rubella vaccine, purified protein derivative of tuberculin, and keyhole limpet hemocyanin.
- 20. The method according to claim 17 wherein the immunogenic polypeptide comprises a B cell epitope from the C-terminal 26 amino acids of human CETP and a T cell epitope from tetanus toxoid.

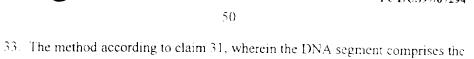


- 22. A method of decreasing the level of endogenous CETP activity in a human or other animal comprising administering to the human or animal a DNA vaccine comprising a nucleotide sequence coding for an immunogenic polypeptide, which nucleotide sequence includes at least one segment coding for a B cell epitope of CETP linked in-frame with at least one segment coding for a broad range helper T cell epitope, which nucleotide sequence is operably linked to a promoter sequence suitable for directing the transcription of the nucleotide sequence in a mammalian cell.
- 23. The method according to claim 22 wherein said B cell epitope comprises a carboxyl terminal region of CETP involved in neutral lipid binding or neutral lipid transfer activity.
- 24 The method according to claim 22 wherein the broad range helper T cell epitope is selected from the group consisting of T cell epitopes of tetanus toxoid, diphtheria toxin, pertussis vaccine, Bacile Calmette-Guerin (BCG), polio vaccine, measles vaccine, mumps vaccine, rubella vaccine, purified protein derivative of tuberculin, and keyhole limpet hemocyanin.
- 25. The method according to claim 22 wherein the immunogenic polypeptide comprises a B cell epitope from the C-terminal 26 amino acids of human CETP and a T cell epitope from tetanus toxoid.
- 26. The method according to claim 25 wherein the immunogenic peptide comprises two B cell epitopes of human CETP.
- 27. A method for eliciting production of anti-CETP antibodies in a human or animal comprising administering a DNA vaccine comprising a nucleotide sequence coding for an immunogenic polypeptide, which nucleotide sequence includes at least one segment coding for a B cell epitope of CETP linked in-frame with at least one segment coding for a broad range helper T cell epitope, which nucleotide sequence is operably linked to a promoter

sequence suitable for directing the transcription of the nucleotide sequence in a mammalian cell.

- 28. A method of increasing the level of circulating HDL in a human or animal comprising administering to the human or animal a DNA vaccine comprising a nucleotide sequence coding for an immunogenic polypeptide, which nucleotide sequence includes at least one segment coding for a B cell epitope of CETP linked in-frame with at least one segment coding for a broad range helper T cell epitope, which nucleotide sequence is operably linked to a promoter sequence suitable for directing the transcription of the nucleotide sequence in a mammalian cell.
- 29. The method according to claim 28, wherein the helper T cell epitope comprises a helper T cell epitope derived from an antigenic peptide selected from the group consisting of tetanus toxoid, diphtheria toxin, pertussis vaccine, Bacile Calmette-Guerin (BCG), polio vaccine, measles vaccine, mumps vaccine, rubella vaccine, purified protein derivative of tuberculin, keyhole limpet hemocyanin, and combinations thereof.
- 30. The method according to claim 28, wherein the B cell epitope portion comprises a carboxyl terminal region of human CETP.
- 31. A method for therapeutically or prophylactically treating cardiovascular disease in a human or other animal in need of treatment thereof comprising administering to said human or other animal a DNA plasmid-based vaccine comprising a DNA segment comprising the nucleotide sequence coding for an immunogenic polypeptide, which nucleotide sequence includes at least one segment coding for a B cell epitope of CETP linked in-frame with at least one segment coding for a broad range helper T cell epitope, which nucleotide sequence is operably linked to a promoter sequence suitable for directing the transcription of the nucleotide sequence in a mammalian cell.
- 32. The method according to claim 31, wherein the nucleotide sequence coding for an immunogenic polypeptide comprises a DNA sequence of nucleotides 55 through 111 of SEQ ID NO:5 and a DNA sequence of nucleotides 112 through 159 of SEQ ID NO:5

nucleotide sequence of SEQ ID NO:5.



- 34. The method according to claim 31, wherein the DNA nucleotide sequence coding for an immunogenic polypeptide comprises the DNA sequence of nucleotides 1045 through 1101 of SEQ ID NO:3 and the DNA sequence of nucleotides 1387 through 1425 of SEQ ID NO:3.
- 35. The method according to claim 31, wherein the DNA nucleotide sequence coding for an immunogenic polypeptide comprises the DNA sequence of nucleotides 1045 through 1101 of SEQ ID NO:3 and the DNA sequence of nucleotides 1381 through 1428 of SEQ ID NO:3.